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Serial No. 10/690,238   October 21, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A computer aided design (CAD) system for designing high performance circuits, said CAD system comprising:

a graphical user interface (GUI) having input fields including conductor and dielectric input fields;

a template generation engine interfaced with said GUI and generating multi-dimensional templates from interconnect configuration files; and

a field solver using conductor and dielectric inputs guided by said multi-dimensional templates to determine circuit interconnection electric parameters.

2. (original) A CAD system as in claim 1, wherein said input fields are geometric and property specification input fields.

3. (original) A computer aided design (CAD) system comprising:

a template generation engine generating templates from interconnect configuration files;

a field solver generating broadband passive element relationships from said templates;

a circuit builder generating circuit description files from device technology models and said broadband passive element relationships; and

a simulator simulating circuit responses for transmission line models from said circuit description files.

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4. (original) A CAD system as in claim 3, further comprising:

a geometry and material definition module receiving process description and generating said interconnect configuration files.

5. (original) A CAD system as in claim 4, wherein process inputs are varied in said process description through a graphical user interface (GUI).

6. (original) A CAD system as in claim 5, wherein conductor geometric and property specifications and dielectric geometric property specifications for interconnect wiring layers are provided to said GUI.

7. (original) A CAD system as in claim 5, wherein said interconnect configuration files include two dimensional inductance templates and three dimensional per unit capacitance values for interconnect wiring layers.

8. (original) A CAD system as in claim 5, wherein templates include two dimensional (2D) inductance templates and three dimensional (3D) capacitance templates.

9. (currently amended) A CAD system as in claim 8 [[5]] wherein said 2D inductance templates and 3D capacitance templates are combined to provide multiple dielectric stack inclusion in capacitance calculation.

10. (original) A CAD system as in claim 5, wherein said broadband passive relationships include frequency dependent resistance and inductance for selected signal conductors.

11. (original) A CAD system as in claim 5 wherein two dimensional and three dimensional resistance and inductance templates are combined to provide wide-band circuit parameters.

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12. (original) A CAD system as in claim 5 wherein said template generation engine generates two dimensional (2D) broadband inductance templates for lines in a first layer, said 2D broadband inductance templates including far reference conductors in said first layer and in at least each of a layer above and below said first layer.

13. (original) A CAD system as in claim 5 wherein said template generation engine generates three dimensional (3D) templates for capacitance calculation in a signal layer, said 3D templates including variable orthogonal wiring density in layers above and below said signal layer.

14. (original) A CAD system as in claim 5, wherein said GUI displays simulated said circuit responses.

15. (original) A CAD system for designing high performance circuits, said CAD system comprising:

a graphical user interface (GUI) having input fields including conductor and dielectric input fields;

a geometric conductor configuration module combining said conductor and dielectric field inputs, said geometric conductor configuration module producing an interconnect structure representation bounded by electromagnetic boundary conditions; and

a field solver using produced said interconnect structure and the electromagnetic boundary conditions to determine interconnection structure parameters.

16. (original) A CAD system as in claim 15, wherein said input fields are geometric and property specification input fields.

17. (original) A CAD system, as in claim 16, wherein said geometric conductor configuration module produces a two dimensional (2D) conductor representation.

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18. (original) A CAD system, as in claim 17, wherein said 2D conductor representation is a 2D capacitive representation.

19. (original) A CAD system, as in claim 18, wherein said 2D capacitive representation further includes a conductance representation of dielectric properties.

20. (original) A CAD system, as in claim 19, wherein said 2D representation process is a 2D inductive representation.

21. (original) A CAD system, as in claim 20, wherein said 2D inductive representation further includes a resistive representation of conductors and dielectric properties.

22. (original) A CAD system, as in claim 21, wherein said 2D inductive representation further includes frequency dependent inductance effects.

23. (original) A CAD system, as in claim 22, wherein the frequency dependent inductance effects include skin effects, proximity effects and return path proximity effects.

24. (original) A CAD system, as in claim 23, wherein said geometric conductor configuration module produces a three dimensional (3D) conductor representation.

25. (original) A CAD system, as in claim 24, wherein said 3D conductor representation is a 3D capacitive representation.

26. (original) A CAD system, as in claim 24, wherein said 3D conductor representation is a 3D inductive representation.

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27. (original) A CAD system as in claim 24 that generates circuit netlists for simulation,

said netlists providing an equivalent synthesized circuit based representation of

frequency-dependent net behavior.

28. (original) A CAD system as in claim 24 that generates parameterized netlists.

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